UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,192	12/02/2003	Simon Robert Walmsley	PEA17US	4559

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EXAMINER
KHOSHNOODI, NADIA

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/727,192	WALMSLEY ET AL.
	Examiner	Art Unit	
	NADIA KHOSHNOODI	2437	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *15 April 2009*.

2a) ☐ This action is FINAL.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-3 and 5-32* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-3 and 5-32* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *02 December 2003* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some *   c) ☐ None of:

       1. ☒ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____.

       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on 4/15/2009 has been entered.

Response to Amendment

Claim 4 has been cancelled. Applicant's arguments/amendments with respect to pending

claims 1-3 & 5-32 filed 3/19/2009 have been fully considered but are moot in view of the new

grounds of rejection.

Claim Rejections - 35 USC § 101

I.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

II.   Claims 1-3 and 5-32 are rejected under 35 U.S.C. 101 based on Supreme Court precedent

and recent Federal Circuit decisions, a 35 U.S.C § 101 process must (1) be tied to a particular

machine or (2) transform underlying subject matter (such as an article or materials) to a different

state or thing. In re Bilski et al, 88 USPQ 2d 1385 CAFC (2008); Diamond v. Diehr, 450 U.S.

175, 184 (1981); Parker v. Flook, 437 U.S. 584, 588 n.9 (1978); Gottschalk v. Benson, 409 U.S.

63, 70 (1972); Cochrane v. Deener, 94 U.S. 780,787-88 (1876).

An example of a method claim that would <u>not</u> qualify as a statutory process would be a claim that recited purely mental steps. Thus, to qualify as a § 101 statutory process, the claim should positively recite the particular machine to which it is tied, for example by identifying the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, for example by identifying the material that is being changed to a different state.

Here, applicant's method steps are not tied to a particular machine and do not perform a transformation. Thus, the claims are non-statutory.

The mere recitation of the machine in the preamble with an absence of a machine in the body of the claim fails to make the claim statutory under 35 USC 101. *Note the Board of Patent Appeals Informative Opinion Ex parte Langemyer et al.*

Claim Rejections - 35 USC § 103

III.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

IV.   Claims 1-3, 5-16, 18-20, 22-24, 26-28, and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wertheimer et al., US Patent No. 5,920,630 and further in view of Husemann et al., US Patent No. 6,192,349.

As per claim 1:

Wertheimer et al. substantially teach a method including the steps of: allocating first

secret key to the primary entity (col. 6, lines 53-57); for each of the one or more secondary

entities, determining second secret key by applying a one way function to that secondary entity's

identifier and the first secret key (col. 6, line 65 – col. 7, line 11), such that the second secret key

is a variant of the first secret key only ascertainable with knowledge of the first secret key (col. 6,

line 65 – col. 7, line 11); allocating the second secret key to the or each secondary entity (col. 7,

lines 12-25).

Not explicitly disclosed is applying the one way function to only the secondary entity's

identifier and the first secret key. However, Husemann et al. teach that, in an environment that

makes use of smart cards owned by one or more secondary entities, a secret key for each card

can be generated by performing a hash over a master key and the card's identifier (col. 2, lines

45-51). Therefore, it would have been obvious to a person in the art at the time the invention

was made to modify the method disclosed in Wertheimer et al. to create the secret key from only

a primary key and the secondary entity's identifier. This modification would have been obvious

(in light of *KSR*) because a person having ordinary skill in the art, at the time the invention was

made, could have generated a key in the manner claimed since Husemann et al. suggest that one

of ordinary skill in the art could have used only a primary entity's key and a secondary entity's

identifier to generate a secret key in col. 2, lines 45-51.

As per claim 2:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim

1. Furthermore, Wertheimer et al. teach wherein the identifiers allocated to the secondary

entities are generated stochastically, pseudo-randomly or arbitrarily (col. 8, lines 53-67).

As per claim 3:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim

2. Furthermore, Wertheimer et al. teach wherein the one-way function is a hash function (col. 9,

lines 8-15).

As per claim 5:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim

3. Furthermore, Wertheimer et al. teach wherein the one-way function is a Secure Hash

Algorithm function (col. 9, lines 8-15).

As per claim 6:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim

1. Furthermore, Wertheimer et al. teach wherein each of the entities is implemented in an

integrated circuit (col. 6, lines 25-50).

As per claim 7:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim

1. Furthermore, Wertheimer et al. teach wherein each of the entities is implemented in an

integrated circuit separate from the integrated circuits in which the other entities are

implemented (col. 6, lines 25-50).

As per claim 8:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim

1. Furthermore, Wertheimer et al. teach wherein one or more of the secondary entities are

implemented in a corresponding plurality of integrated circuits (col. 6, lines 25-50).

As per claim 9:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 1. Furthermore, Wertheimer et al. teach wherein the primary entity is implemented in an integrated circuit (col. 6, lines 25-50).

As per claim 10:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 1. Furthermore, Wertheimer et al. teach wherein both the primary and secondary entities are implemented in integrated circuits (col. 6, lines 25-50).

As per claim 11:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 1. Furthermore, Wertheimer et al. teach in which the first entity wishes to communicate with one of the second entities, the method including the steps, in the first entity, of: receiving data from the second entity (col. 6, line 53 – col. 7, line 11); using the data and the first secret key to generate the second secret key associated with the second entity (col. 6, line 53 – col. 7, line 11).

As per claim 12:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 11. Furthermore, Wertheimer et al. teach wherein the data contains an identifier for the second entity (col. 6, line 65 – col. 7, line 11).

As per claim 13:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 11. Furthermore, Wertheimer et al. teach in which the first entity wishes to send an authenticated message to the second entity, the method including the steps, in the first entity, of: using the

generated second secret key to sign a message, thereby generating a digital signature; outputting the message and the digital signature for use by the second entity, which can validate the message by using the digital signature and its own copy of the second secret key (col. 10, lines 19-37).

As per claim 14:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 13. Wertheimer further teach the method in which the generated signature includes its own copy of the second secret key and in which the generated signature includes a nonce from the first entity, and the output from the first entity includes the nonce, thereby enabling the second entity to validate the message using the digital signature, the nonce (col. 12, lines 43-51).

As per claim 15:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 11. Furthermore, Wertheimer et al. teach wherein the data contains a first nonce (col. 12, lines 43-51).

As per claim 16:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 15. Furthermore, Wertheimer et al. teach the method in which the first entity wishes to send an authenticated message to the second entity, the method including the steps, in the first entity, of: using the generated second secret key and the nonce to sign a message, thereby generating a digital signature; outputting the message and the digital signature for use by the second entity, which can validate the message by using the digital signature and its own copy of the second secret key (col. 12, lines 43-60).

As per claim 18:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 11. Furthermore, Wertheimer et al. teach the method in which the first entity wishes to send an encrypted message to the second entity, the method including the steps, in the first entity, of: using the generated second secret key to encrypt a message, thereby generating an encrypted message; outputting the encrypted message for use by the second entity, which can decrypt the message by using its own copy of the second secret key (col. 9, lines 49-61).

As per claim 19:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 18. Furthermore, Wertheimer et al. teach the method in which the encrypted message includes a nonce from the first entity, and the output from the first entity includes the nonce, thereby enabling the second entity to decrypt the message using the nonce, and its own copy of the second secret key (col. 12, lines 43-51).

As per claim 20:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 15. Furthermore, Wertheimer et al. teach the method in which the first entity wishes to send an encrypted message that incorporates the first nonce to the second entity, the method including the steps, in the first entity, of: using the generated second secret key to encrypt a message and the first nonce, thereby generating an encrypted message; outputting the encrypted message for use by the second entity, which can decrypt the encrypted message by using its own copy of the second secret key (col. 10, lines 19-37).

As per claim 22:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 1. Furthermore, Wertheimer et al. teach the method in which one of the second entities wishes to send an authenticated message to the first entity, the method including the steps, in the second entity, of: using the second secret key to sign a message, thereby to generate a digital signature; and outputting the message, digital signature and the second entity's identifier for use by the first entity, such that the first entity can use the identifier and the first secret key to generate the second secret key associated with the second entity, and thereby authenticate the message via the digital signature (col. 10, lines 19-37).

As per claim 23:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 1. Furthermore, Wertheimer et al. teach the method in which one of the second entities wishes to send an authenticated message to the first entity, the method including the steps, in the second entity, of: using the second secret key and a nonce to sign a message, thereby to generate a digital signature; and outputting the message, nonce, digital signature and the second entity's identifier for use by the first entity, such that the first entity can use the identifier and the first secret key to generate the second secret key associated with the second entity, and thereby authenticate the message via the nonce and digital signature (col. 12, lines 43-60).

As per claim 24:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 1. Furthermore, Wertheimer et al. teach the method in which one of the second entities wishes to send an authenticated message to the first entity, the method including the steps, in the second entity, of: receiving a first nonce from the first entity; using the second secret key and the first

nonce to sign a message, thereby to generate a digital signature; and outputting the message, digital signature and the second entity's identifier for use by the first entity, such that the first entity can use the identifier and the first secret key to generate the second secret key associated with the second entity, and thereby authenticate the message via the first nonce and digital signature (col. 11, lines 2-40 and col. 12, lines 43-51).

As per claim 26:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 1. Furthermore, Wertheimer et al. teach the method in which one of the second entities wishes to send an encrypted message to the first entity, the method including the steps, in the second entity, of: using the second secret key to encrypt the message, thereby to generate an encrypted message; and outputting the encrypted message and the second entity's identifier for use by the first entity, such that the first entity can use the identifier and the first secret key to generate the second secret key associated with the second entity, and thereby decrypt the encrypted message (col. 9, lines 20-61).

As per claim 27:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 1. Furthermore, Wertheimer et al. teach the method in which one of the second entities wishes to send an encrypted message to the first entity, the method including the steps, in the second entity, of: using the second secret key to encrypt the message and a nonce, thereby to generate an encrypted message; and outputting the nonce, encrypted message and the second entity's identifier for use by the first entity, such that the first entity can use the identifier and the first secret key to generate the second secret key associated with the second entity, and thereby

decrypt the encrypted message (col. 10, lines 40-58).

As per claim 28:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim 1. Furthermore, Wertheimer et al. teach the method in which one of the second entities wishes to send an encrypted message to the first entity, the method including the steps, in the second entity, of: receiving a nonce from the first entity; using the second secret key to encrypt the message and the nonce, thereby to generate an encrypted message; and outputting the encrypted message and the second entity's identifier for use by the first entity, such that the first entity can use the identifier and the first secret key to generate the second secret key associated with the second entity, and thereby decrypt the encrypted message (col. 10, lines 51-64).

As per claim 30:

Wertheimer et al. and Husemann et al. substantially teach the method according to any one of claims 14, 15, 16, 17, 19, 20, 21, 23, 24, 25, 27, 28 or 29 (i.e. claim 14). Furthermore, Wertheimer et al. teach wherein at least one of the nonces is a pseudo-random number (col. 10, lines 59-64).

As per claim 31:

Wertheimer et al. and Husemann et al. substantially teach the method according to any one of claims 11 to 21 (i.e. claim 11). Furthermore, Wertheimer et al. teach wherein the communication is an authenticated read of a field of the first entity (col. 7, lines 1-31).

As per claim 32:

Wertheimer et al. and Husemann et al. substantially teach the method according to any

one of claims 22 to 29 (i.e. claim 22). Furthermore, Wertheimer et al. teach wherein the

communication is an authenticated read of a field of the second entity (col. 7, lines 1-31).

IV.   Claims 17, 21, 25, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Wertheimer et al., US Patent No. 5,920,630 and Husemann et al., US Patent No. 6,192,349, as

applied to claims 1, 3, 16, and 20 above, and further in view of Bruce Schneier, *Applied*

Cryptography.

As per claim 17:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim

16. Not explicitly disclosed is the method in which the generated signature includes a second

nonce from the first entity, and the output from the first entity includes the second nonce, thereby

enabling the second entity to validate the message using the digital signature, the first and second

nonces, and its own copy of the second secret key. However, Schneier teaches that timestamps

may be used in combination with digital signatures in order to prevent against replay attacks.

Therefore, it would have been obvious to a person in the art at the time the invention was made

to modify the method disclosed in Wertheimer et al. to use timestamps with digital signature

technology in order to prevent from various attacks. This modification would have been obvious

because a person having ordinary skill in the art, at the time the invention was made, would have

been motivated to do so since Schneier suggests that timestamps prevent replay attacks on page

38, third paragraph under section "Signing Documents and Timestamps."

As per claim 21:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim

20. Not explicitly disclosed is the method in which the encrypted message includes a second

nonce from the first entity, and the output from the first entity includes the second nonce.

However, Schneier teaches that timestamps may be used in combination with digital signatures

in order to prevent against replay attacks. Therefore, it would have been obvious to a person in

the art at the time the invention was made to modify the method disclosed in Wertheimer et al. to

use timestamps with digital signature technology in order to prevent from various attacks. This

modification would have been obvious because a person having ordinary skill in the art, at the

time the invention was made, would have been motivated to do so since Schneier suggests that

timestamps prevent replay attacks on page 38, third paragraph under section "Signing

Documents and Timestamps."

As per claim 25:

Wertheimer et al. and Husemann et al. substantially teach the method according to claim

1. Furthermore, Wertheimer et al. teach the method in which one of the second entities wishes to

send an authenticated message to the first entity, the method including the steps, in the second

entity, of: receiving a first nonce from the first entity; using the second secret key and the first

nonce, thereby to generate a digital signature; and outputting the message, digital signature and

the second entity's identifier for use by the first entity, such that the first entity can use the

identifier and the first secret key to generate the second secret key associated with the second

entity, and thereby authenticate the message via the first nonce, and digital signature (col. 10,

lines 51-64).

Not explicitly disclosed is using a second nonce in generating a signature for the message, outputting the second nonce, and authenticating the second nonce. However, Schneier teaches that timestamps may be used in combination with digital signatures in order to prevent against replay attacks. Therefore, it would have been obvious to a person in the art at the time the invention was made to modify the method disclosed in Wertheimer et al. to use timestamps with digital signature technology in order to prevent from various attacks. This modification would have been obvious because a person having ordinary skill in the art, at the time the invention was made, would have been motivated to do so since Schneier suggests that timestamps prevent replay attacks on page 38, third paragraph under section "Signing Documents and Timestamps." As per claim 29:

Wertheimer et al. and Husemann et al. substantially teach method according to claim 1. Furthermore, Wertheimer et in which one of the second entities wishes to send an encrypted message to the first entity, the method including the steps, in the second entity, of: receiving a first nonce from the first entity; using the second secret key to encrypt the message and the first nonce, thereby to generate an encrypted message; and outputting, the encrypted message and the second entity's identifier for use by the first entity, such that the first entity can use the identifier and the first secret key to generate the second secret key associated with the second entity, and thereby decrypt the encrypted message (col. 10, lines 51-64).

Not explicitly disclosed is encrypting a second nonce and outputting a second nonce. However, Schneier teaches that timestamps may be used in combination with digital signatures in order to prevent against replay attacks. Therefore, it would have been obvious to a person in the art at the time the invention was made to modify the method disclosed in Wertheimer et al. to

use timestamps with digital signature technology in order to prevent from various attacks. This

modification would have been obvious because a person having ordinary skill in the art, at the

time the invention was made, would have been motivated to do so since Schneier suggests that

timestamps prevent replay attacks on page 38, third paragraph under section "Signing

Documents and Timestamps."

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Nadia Khoshnoodi whose telephone number is (571) 272-3825.

The examiner can normally be reached on M-F: 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Emmanuel Moise can be reached on (571) 272-3865. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nadia Khoshnoodi/
Examiner, Art Unit 2437
6/4/2009

NK

/Emmanuel L. Moise/
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